

**REMARKS/ARGUMENTS**

**Status of the Claims**

Claims 1-23 are pending. All the pending claims at issue are believed to be patentable over the cited references. Reconsideration and withdrawal of the outstanding rejections are respectfully requested in view of the following remarks.

**35 U.S.C. §103(a)**

The Office Action rejected claims 1-23 under 35 U.S.C. §103(a) as being unpatentable over the admitted prior art, hereafter APA, in view of U.S. Patent No. 5,999,071 to Ostertag. This rejection is respectfully traversed.

Pursuant to *MPEP* §2142, the Examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. To establish a *prima facie* case of obviousness, three criteria must be met. First, there must be some suggestion or motivation to modify the references or to combine reference teachings. Second, there must be reasonable expectation of success. Finally, the prior art must teach all the claim limitations. *MPEP* §2142. In light of the following remarks, the combined references do not teach or suggest all of the claimed limitations of the present invention.

Applicants' independent claim 1 recites, "a broadband coaxial transmission line, comprising: joined segments of coaxial transmission lines, the segments being of substantially the same length; and a plurality of substantially identical first and second insulating supports, wherein the first insulating supports are positioned at flange joints within the joined segments and the second insulating supports are positioned within the

joined segments at equidistant intervals from each other and equidistant from the first insulating supports, the distance between any of the insulating supports being approximately one half a wavelength of a frequency that is outside a channel band of an operating range of the transmission line.”

Applicants’ independent claim 9 recites, “a method for designing a broadband coaxial transmission line, comprising the steps of: joining segments of substantially identical transmission lines of substantially identical lengths; arranging a plurality of insulating supports within the joined segments, so that the insulating supports are substantially equidistant from each other and the distance between any of the insulating supports is approximately one half a wavelength of a frequency that is outside a channel band of an operating range of the transmission line.”

Applicants’ independent claim 17 recites, “a broadband coaxial transmission line, comprising: joined segments of substantially equal length electrical signal transmitting means for transmitting a signal from a source to a load; and a plurality of substantially identical supporting means for separating an inner conductor of the transmitting means from an outer conductor of the transmitting means, the supporting means positioned in the electrical signal means at substantially equidistant intervals, wherein the substantially equidistant intervals correspond to approximately one half a wavelength of a frequency that is outside a channel band of an operating range of the electrical signal transmitting means.”

The admitted prior art includes U.S. Patent No. 6,816,040 to Brown, *et al.* (“’040 patent”), U.S. Patent No. 3,364,489 to Masters (“’489 patent”), U.S. Patent No.

2,654,868 to Zaleski (“868 patent”), U.S. Patent No. 2,588,103 to Fox (“103 patent”), U.S. Patent No. 2,445,348 to Ford (“348 patent”), U.S. Patent No. 4,799,036 to Owens (“036 patent”) and to U.S. Patent No. 2,419,985 (“985 patent”) to Brown.

The ‘040 patent is directed to a broadband coaxial transmission line formed by joining smaller coaxial transmission lines having particularly formulated lengths. Supports in the transmission line are situated in a particular manner to reduce reflections along the transmission line. The ‘489 patent is directed to a traveling wave antenna in which electromagnetic waves are propagated along a transmission channel for absorption of energy therefrom and consequent radiation of the electromagnetic wave by a plurality of pairs of the recurrent radiating elements coupled to the channel for cophasal excitation by each electromagnetic wave. The ‘868 patent is directed to microwave hollow guide rotatable joints which provide angularly variable connections between hollow guides of rectangular or circular cross section. The ‘103 patent is directed to frequency selective wave transmission systems employing wave guide transformers. The ‘348 patent is directed to microwave transmission and measurement systems and aperiodic reflectometers for measuring the magnitude of reflected waves over a wide frequency range on a wave-guide transmission system. The ‘036 patent is directed to a coaxial transmission line vacuum feed-through based on the use of a half-wavelength annular dielectric pressure barrier disc or multiple discs comprising an effective half-wavelength structure to eliminate reflections from the barrier surfaces. The ‘985 patent is directed to reactance compensation and neutralizing the effects of the reactances which are unavoidably present in radio frequency power circuits. Thus, the APA is directed to minimizing in-band reflections by varying the spacing according to particular algorithms.

(Emphasis added).

Ostertag is directed to a rigid coaxial transmission line system utilizing a plurality of uniformed length sections in ordered groups. Each ordered group contains equal-length sections to reduce the VSWR spike. Each equal-length section within an ordered group has a different length for different groups. See col. 2, lines 48-54 and col. 3, lines 31-37, for example. Ostertag reduces the VSWR by “staggering” different groups of transmission line sections having equal-length sections therein. Therefore, Ostertag attempts to minimize in-band reflections by distributing the resonance effects of equal-length sections by varying the length in each group.

At no point in Ostertag is there a suggestion or discussion relating to the use of equal-length sections for all groups. In fact, Ostertag specifically states that, “sections in different groups have different lengths.” See col. 3, lines 33-34 for example.

Additionally, it is noted that all of Ostertag’s figures describing the VSWR have values that are significantly below 1.1. Therefore, there is no “build up” of resonance outside a channel band of an operating range of a transmission line, as claimed.

It is readily apparent from the above that the APA and Ostertag, individually or in combination do not disclose or suggest all the features of Applicant’s invention. It is also readily apparent that since Ostertag does not supply the subject matter lacking in the APA, that the Examiner may be impermissibly engaging in hindsight reconstruction, attempting to pick and choose between the references and providing motivation not taught in the references but disclosed in the Applicant’s specification to assert obviousness.

In view of the above, Applicants respectfully request withdrawal of the rejection

of Applicants' independent claims 1, 9 and 17.

For at least the above reasons, dependent claims 2-8; claims 10-16; and claims 18-23, are patentable for depending on the above independent claims, as well as for the subject matter recited therein. Therefore, Applicants respectfully request the withdrawal of the rejection of claims 2-8, 10-16 and 18-22.


**CONCLUSION**

In view of the foregoing remarks, Applicants respectfully submit that this application is in condition for allowance. Should the Examiner believe that anything further is necessary to place the application in even better condition for allowance, the Examiner is invited to contact the undersigned attorney at 202-861-1746 in an effort to resolve any matter still outstanding before issuing another action.

In the event this paper is not timely filed, Applicants petition for an appropriate extension of time. Please charge any fee deficiencies or credit any overpayments to Deposit Account No. 50-2036 with reference to our Docket No. 87326.3940.

Respectfully submitted,

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